

A faint, light blue world map is visible in the background of the slide, centered behind the text.

# **INDOOR AIR QUALITY**

## **FINDING THE PROBLEM**

# DEFINITION

- **ACCEPTABLE INDOOR AIR QUALITY:**  
Air in which there are no known contaminants at harmful concentrations as determined by cognizant authorities. A substantial majority (80% or more) of the people exposed are not expressing dissatisfaction with air quality
- Source: ASHRAE standard 1990, 62-1989

# DEFINITIONS

- **SICK BUILDING SYNDROME (SBS):** A term used to define a building that has a large number of complaints derived from the occupants. These complaints cannot be clinically diagnosed or medically verified
- **BUILDING RELATED ILLNESS (BRI):** A term used when the illness is diagnosable

# IAQ FACTORS

- Physical
- Psychological

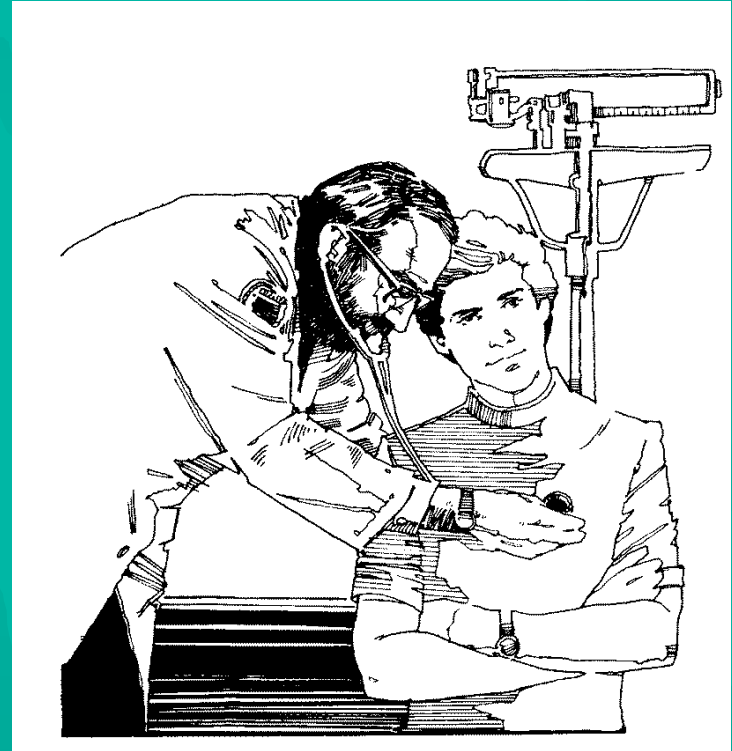


# COMMON SYMPTOMS

- Headache
- Fatigue
- Shortness of breath
- Sinus congestion
- Cough
- Sneezing
- Eye, nose, throat irritation

# COMMON SYMPTOMS

- Skin irritation
- Dizziness
- Nausea



# THE PROBLEM

- Studies have shown that over 50% of the complaints in a building are in some way related to the heating, ventilating and air conditioning system (HVAC)

# ENVIRONMENTAL VARIABLES

- Air Temperature
- Mean Radiant Temperature
- Relative Air Velocity
- Ambient Water Vapor Pressure  
(Relative Humidity)



# INDEPENDENT PERSONAL VARIABLES

- Activity Level
- Clothing Level

Source:

ASHRAE Fundamentals Handbook  
1993

# ENVIRONMENTAL COMPLAINTS

- Too hot
- Too cold
- Too humid
- Too dry
- Poor ventilation
- Mold or dust
- It's broke





**FIND THE PROBLEM**



**GO LOOK**

**INVESTIGATE**

# THE HVAC SYSTEM

- OUTSIDE AIR INTAKE
- FILTER SECTIONS
- COIL SECTIONS (includes drain pans)
- FAN SECTION
- SUPPLY DUCT
- RETURN PATH/DUCT

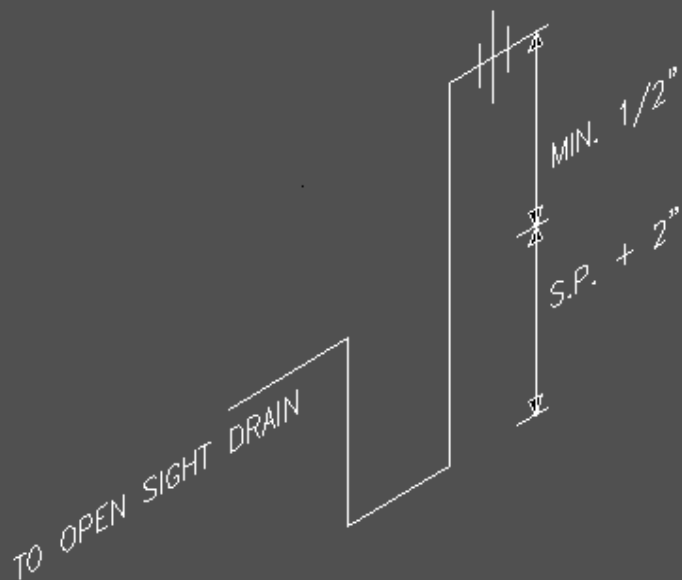
# THE MAINTENANCE FUNCTION

- Watch for water accumulation
- 50% of the IAQ problems are microbiological
- Air quality tests seldom, if ever, identify a specific problem  
(Engineered Systems Sept 1998)

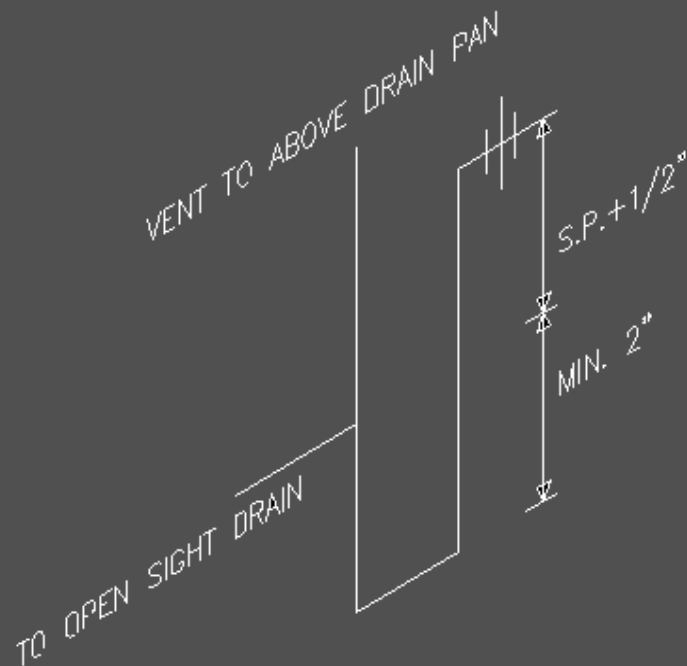
# THE MAINTENANCE FUNCTION

- Custodial
- Condensate P-Traps





**BLOW-THROUGH UNIT**



**DRAW-THROUGH UNIT**

#### DETAIL NOTES

1. CONDENSATE DRAIN PIPING TO BE COPPER OR PVC.
2. REFER TO SCHEDULE SHEET FOR FAN STATIC PRESSURE.



**CONDENSATE DRAIN PIPE**

NTS